The Inadaptability of Government Projects to High Risk: Causes and Implications

Abstract

Enhanced planning can effectively mitigate high levels of project risk. However, this approach requires organizations to be adaptable in their planning practices to the project in hand. This article investigates whether government organizations are adaptable in their planning to the level of risk projects and programs introduce. For this purpose, this research studied planning in 992 government and private projects. Results show that planning in government is ineffective (i.e., it does not lead to enhanced project performance) because managers invest a similar level of effort in planning regardless of the risk level. In particular, when risk levels increase, government projects invest less (rather than more) effort in resource, budget, human resources, and procurement planning. This article contributes to the risk-planning-performance theory and supports government managers making better planning and resource allocation decisions.

Keywords: project, planning, risk, contingency theory, planning-performance theory.

1. Introduction

Planning-performance theory suggests that formal planning has a positive impact on organizational performance in general (Andersen, 2000; Brinckmann, Grichnik, & Kapsa, 2010) and on project performance in particular (e.g., Zwikael & Globerson, 2004; Islam & Faniran, 2005; Narayanan, Balasubramanian, & Seaminathan, 2011). However, this theory does not consider risk's impact on the relationship between planning and performance. High risk levels can impede projects' and programs' performance (Flyvbjerg, 2007; Wallace, Keil, & Rai, 2004); hence, organizations often manage high-risk projects differently than low-risk ones (Ramasesh & Browning, 2014; Becerra-Fernandez & Sabherwal, 2001). In particular, risk-planning-performance theory suggests that under high risk levels organizations should boost their planning further to enhance project performance (Zwikael & Sadeh, 2007).

Effective deployment of risk-planning-performance theory requires an organization to assess risk levels correctly and be flexible in adjusting planning practices to various levels of risks. However, scholars have claimed that government organizations hold poor practices in these two particular areas (i.e., in risk assessment and adaptability) (Mcube, Gerber, & von Solms, 2016; Greenberg & Sinha, 2006; Garson, 2003; Holmes, 2001; Bozeman & Kingsley, 1998). For example, Somers and Svara (2009) argue that economic, legal decisions, social, technological, political, and public factors impact risk assessment in the government sector. As a result, government organizations may be unable to efficiently enhance planning when facing high risk levels.

The practice of planning critically influences how well public sector organizations can achieve successful change (Fernandez & Rainey, 2006). This article

investigates whether government projects adapt their planning practices to the level of project risk, and, if not, whether this inadaptability contributes to low project performance in high risk projects in this sector (Patanakul, 2014; Ammons, Coe, & Lombardo, 2001; Kosar, 2009; Flyvbjerg, Bruzelius, & Rothengatter, 2003; Han et al., 2009; Jolivet & Navarre, 1996). Therefore, this article addresses the following research questions:

RQ1: How well do government organizations adapt their planning practices to projects with high risk levels?

RQ2: Does planning enhance performance in high risk government projects?

To answer these questions, this article tests the risk-planning-performance theory in the public sector with the aim to support managers in government in deciding how much effort and resources they should invest in different planning processes for various project scenarios. The article employs the following structure: in Section 2, I develop the theory on the relationship between risk and planning in government projects and raise hypotheses. In Section 3, I discuss the methodology of a vast empirical study conducted in seven countries. In Section 4, I report the study's results. In Section 5, I discuss the findings, and in Section 6 conclude the paper.

2. Theory Development

2.1. The Nature of Government Projects

Government projects use public funds to achieve the "greatest good for the greatest number" (Leven, 2006) in areas such as transportation, health, e-government, and infrastructure (Flyvbjerg, MEtte, & Buhl, 2002). Projects principally seek to effectively turn government policies and requirements into desired outputs for all stakeholders (McPhee, 2008). Politicians and civil service executives play an

important role in interacting with, negotiating with, and settling disputes with external actors, such as funding agencies (Torres & Pina, 2004). Patanakul et al. (2016) suggest that government projects have six key characteristics: 1) they pursue non-financial target benefits; 2) they have a long product service life, 3) they deal with multiple stakeholders, 4) they are large and complex megaprojects, 5) they are susceptible to political environment and dynamics, and 6) they follow a mandated project management process. Other challenges in government projects include intense political competition between different actors involved, government manager's and administrators' inability to think strategically, ineffective performance measurement, and ineffective leadership (Wooddell, 2002).

These unique characteristics and challenges in government projects derive from the nature of the public service. Government organizations rely on formalizing rules and developing bureaucratic structures, are subject to laws and regulations, and often require significant integration effort across multiple agencies (Boyne, 2002). Public organizations' goal of achieving a social mission by providing services (Cole & Parston, 2006) differs from the private sector's goal, which is to maximize shareholder wealth (Moore, 2013). Even though the public sector often adapts for-profit management techniques (Moore, 2013), research has proven that the differences between government and private organizations are significant enough to require diverse management approaches (Zwikael, Pathak, Singh, & Ahmed, 2014). Therefore, this article compares these two sectors for their planning practices in general and the effectiveness of risk-planning-performance theory in particular with hypotheses raised later in this section and the full research model in Figure 1.

[Insert Figure 1 about here]

2.2. Risk in Government Projects

Government organizations aim to unbiasedly execute policies and provide a stable administration (Holmes, 2001). As such, they require relatively higher levels of bureaucracy that can hinder risk-taking (Patanakul et al., 2016; MacCrimmon & Wehrung, 1986; Schein, 1985). In contrast, private sector projects experience less bureaucracy than government projects. Thus, because bureaucracy may lead government projects to become risk adverse (Bozeman & Kingsley, 1998), one can expect that government sector projects feature a lower level of risk than those that the private sector lead.

H1: Government projects have lower risk levels than private sector projects.

2.3. The Impact of Risk on Planning

Planning, which refers to systematically arranging elements (Cohen, 2010), is a critical management process because it provides direction to managers; reduces the impact of change, waste, and redundancy; and establishes standards that facilitate control (Schuler, 1994; Kotler & Keller, 2006; Kakoty, 2011; Oliva & Watson, 2011; Tyagi, Jain, & Jain, 2013). The benefits from planning receive support from empirical evidence that demonstrates planning's positive impact on performance (e.g., Andersen, 2000; Di Benedetto, 1999). However, planning does have its drawbacks. For example, it can create rigidity and bureaucracy, can reduce creativity and innovation, and can be difficult to practice in dynamic environments (Brews & Hunt, 1999). Project planning follows the formal approval of the project and precedes

project execution and implementation. During project planning, the project team determines the resources the project needs and the sequence and timing of the activities needed to complete it (Islam & Faniran, 2005). Project teams require knowledge about public policy and the organization during this stage (Gomes, Yasin, & Small, 2012).

Because of government organizations' bureaucratic nature (Patanakul et al., 2016; Boyne, 2002), one can expect to find higher levels of planning in government projects than in private sector projects regardless of their risk level. However, contingency theory (Burns & Stalker, 1961; Shenhar, 2001) suggests that a project's context should influence the planning level the project requires (Burke, Fraser, & Greene, 2010). In particular, Zwikael and Sadeh (2007) found that organizations invest more in planning when the level of risk increases. However, because higher levels of bureaucracy are associated with more risk-adverse managers (Bozeman & Kingsley, 1998) and less action-oriented behavior towards risk (Nutt, 2006), one can expect to find a positive relationship between risk level and planning in private sector projects but not in government projects.

H2: Risk level is positively related with project planning.

H3a: Private projects invest more effort in planning when the risk level increases.

H3b: Government projects do not invest more effort in planning when the risk level increases.

H4: Government projects invest more effort in planning than private sector projects.

2.4. The Impact of Planning on Performance

The literature almost unanimously agrees on planning's positive value (Dvir & Lechler, 2004). Accordingly, planning is a major part of projects in practice (e.g., PMI, 2013). However, Zwikael et al. (2014) have found that planning did not have a positive impact on performance in government projects (Zwikael et al., 2014). Furthermore, Propper and Wilson (2003) found that planning had a low impact on performance in government projects. Potential explanations for planning to have less of an impact on government projects' performance are that planning requires political appointees to disclose certain information and that they can leak sensitive information (Nutt, 2006).

Moreover, the majority of government projects end up with poor project performance (Patanakul, 2014). Ammons et al. (2001) found local government projects had costs that exceeded their benefits. Kosar (2009, p. 998) suggests that "Government programs are the product of politics, hence they usually have multiple and conflicting objectives. Accordingly, these programs produce optimal results only rarely, and sometimes they are doomed to fail by one measure or another". Flyvbjerg et al. (2003) suggests that main causes of poor performance are unrealistic initial cost estimates, a low contingency level, scope creep, expropriation costs, undervaluated price changes, and safety and environmental demands. On analyzing schedule delays in the Korea Express Train Project, Han et al. (2009) found that several factors caused schedule delays: The South Korean government's inability to strategize and manage projects, its underestimating technical requirements, and public resistance due to environmental concerns. Project complexity and size are other root causes of government projects' poor performance (Jolivet & Navarre, 1996). On analyzing projects from the US, the UK, and Australia, Patanakul (2014) found that problems

related to system design and implementation, project management and governance, and contract management are some of the causes of government projects' poor performance. Private sector projects outperform government ones in terms of using best practices (Hwang, Liao, & Leonard, 2011), efficiently making decisions, and having clear and measurable goals (Nutt, 2006). Therefore, one can expect higher project performance levels in the private sector compared with government projects.

H5: Planning is positively related with project performance.

H6a: Private projects' planning enhances performance.

H6b: Government projects' planning does not enhance performance.

H7: Performance of private sector projects is higher than of government projects.

3. Methods

3.1. Sample and Procedure

The researcher used a quantitative research approach to allow sufficient data to statistically compare multiple types of project (i.e., high and low risk and private and government sector projects). The researcher distributed questionnaires in a convenient sample in Australia, New Zealand, China, Japan, Israel, Fiji, and the US. These countries represent distinct sizes and economies.

The unit of analysis in this study was a project. For each project, the researcher administered separate questionnaires to project managers and their supervisors to capture various constructs and avoid "common method bias". The questionnaires asked project managers to report on risk levels and planning in the most recent completed project and to provide contact details of their supervisors, who the researcher then asked to rate the performance of the same projects. A pairing-up

exercise using matching codes resulted in data of 992 projects. Project average duration was 18 months for a cost of US$400,000. Of the respondents, 70.4 percent were male.

3.2. Measures

In the measures outlined below, project managers reported on "planning", "risk", and demographic and control variables, whereas supervisors evaluated "project performance".

Planning. The researcher measured planning extensively using a 16-item scale (Zwikael and Globerson, 2004) that has been commonly utilized in the project planning literature (e.g., Chin & Pulatov, 2007; Masters & Frazier, 2007; Zwikael & Sadeh, 2007; Papke-Shields, Beise, & Quan, 2010; Rees-Caldwell & Pinnington, 2013). This scale evaluates the quality of planning by asking participants to report on a five-point Likert scale the extent to which artifacts from planning processes were generated during their projects. Sample items included a list of activity start and end dates and quality management plan. For project managers to make accurate responses to the survey, the questionnaire defined and illustrated all planning artifacts. Table 5 (left column) presents the 16 items. The scale's alpha coefficient was .88.

Risk. The researcher measured risk using a 10-point Likert scale (1 = low; 10 = high) to capture the wide-range of projects regarding this key variable. The researchers operationalized it using Das and Teng's (2001) definition of performance risk as the perceived chance at the start of the project that factors such as governmental regulation may have negative effects on its results. Scholars have commonly used performance risk in the project context (e.g., Islam & Faniran, 2005; Cortellessa et al., 2005; Lowe, 2010; Zwikael and Smyrk, 2015). The researcher

measured performance risk with a two-item scale that included “risk” and “complexity”. The scale’s alpha coefficient was .78.

Project performance. Whereas scholars have traditionally measured project performance by evaluating completion on time and budget, the real effect of projects takes a time to notice. For example, one may notice enhanced productivity only months after a government agency has implemented a training program for its service employees. Therefore, this article considers multiple performance dimensions (Scott-Young & Samson, 2008; Aviram-Unger, Zwikael, & Restubog, 2013). In particular, the researcher used “efficiency” to measure short-term goals, such as the extent to which a project has met its duration and cost (Dvir & Lechler, 2004), and “effectiveness” to measure long-term strategic objectives from the project, such as realizing target benefits to the client (Zwikael & Smyrk, 2012). The researcher measured project efficiency by the extent to which the project deviated at completion from its planned schedule and cost and with a two-item scale that included “schedule overrun” and “cost overrun” (Dvir & Lechler, 2004). The researcher evaluated both items in percentages as a comparison between actual values at the end of the project and the initial values set at the start of the project or their most recent approved modifications. In cases where the project came in early (or under budget), these variables received negative values. The researcher then reversed all values for analysis to fit with the direction of the efficiency construct. The scale’s alpha coefficient was .78. The researcher rated project effectiveness on a 10-point Likert-type scale (1 = low; 10 = high). The researcher measured it with a two-item scale that included “outputs developed fit for purpose” and “customer satisfaction” (Pinto and Mantel, 1990; Lipovetsky et al., 1997). The scale’s alpha coefficient was .83.

Control variables. To accommodate the "selection effect" (Burke et al., 2010) that suggests that some organizations invest more in planning than others because they (or their projects) are bigger, the researcher included "project cost", "project FTE" (number of full time-equivalent employees in the project team), and "number of projects" (executed in parallel in the organization) as control variables.

The researcher treated private/government sector type as a binary contextual variable. Government projects refer to those funded by public money, whereas private projects are funded privately. The researcher coded the sector as "1" for the government (336 projects in the sample) and "0" for the private sector (656 projects).

3.3. Data analysis

The researcher exercised mean comparison to test H3, H5, and H7 and hierarchical regressions to test the other four hypotheses using SPSS (ver. 24) (Shalley, Gilson, & Blum, 2009; Shin & Zhou, 2003). For each regression analysis, the researcher entered the control variables into the first model and the independent variables into the second model. The researcher conducted regression analyses for the entire dataset and for each sector separately.

4. Results

First, the researcher compared the level of risk of government and private sector projects. Results in Table 1 show that risk level of government projects (5.94) was significantly lower ($F = 26.27$; $p<.001$) than in the private sector (6.78). As such, this result supports H1.

Table 2 shows results of three hierarchical linear regressions to test the impact of risk level on planning. The result, controlled for project and organizational factors, show that, when facing higher risk levels, organizations in general improved their

project planning (β = .02, p < .05). This result supports H2. However, when splitting the sample by sector, an increased risk level enhanced planning only in the private sector (β = .16, p < .05). In the government sector, the researcher found no changes made to planning when risk levels rose (β = .11, p > .05), which supports H3.

The results in Table 1 also show that planning in government projects (3.77) was significantly higher (F = 16.92; p<.001) than in the private sector (3.55), which supports H4. Furthermore, Table 5 shows that government projects planned seven process significantly better than private projects, whereas private projects better planned only two (seven other planning processes had similar results). However, planning in government projects did not enhance performance, in particular, significantly reduced efficiency (β = -.20, p < .01; Table 3), and had no significant impact on effectiveness (β = .10, p > .05; Table 4). Alternatively, in the private sector, planning significantly enhanced both efficiency (β = .41, p < .001; Table 3) and effectiveness (β = 3.53, p < .001; Table 4). These results support H5 and H6.

Finally, the results in Table 1 show, while this research uncovered no significant differences in the level of effectiveness between private and government projects (7.65 and 7.51 respectively; F = 1.50; p>.05), private projects (-15.99) had significantly more efficient programs (F = 28.67; p< .001) than government projects (-24.24), which supports H7.

[Insert Tables 1-5 about here]

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5. Discussion

5.1 Risk-Planning-Performance Theory in the Government Sector

Risk-planning-performance theory suggests that, in turbulence environments, organizations enhance their planning further (Zwikael & Sadeh, 2007). This approach, in return, mitigates the negative impact risk has on performance. However, the literature suggests that government organizations perform poorly in two practices that are core requirements of this theory: risk assessment and adaptability (Bozeman & Kingsley, 1998; Holmes, 2001; Garson, 2003; Somers and Svara, 2009). Therefore, government projects may not identify cases of high risk effectively or fail to act on this information to enhance planning as a protective measure. As a result, this article questions whether these characteristics of government organizations have a negative impact on the effectiveness of risk-planning-performance theory in government projects and programs.

This research compared projects from government and private sectors. The results confirm the accuracy of the risk-planning-performance theory in the private sector. Results also show that, in the government sector, project risk levels are relatively low. Yet, when projects with higher levels of risk appear, unlike in the private sector, government organizations do not improve their planning practices. As a result, project performance in government is lower than in the private sector.

5.2 The inadaptability of government projects to high risk

To answer the first research question about how government projects react to high risk levels, the researcher further compared planning practices between low- and high-risk government projects. For this analysis, the researcher used the 336 government projects split into two groups by their risk level and with the median as

the cut-off point to ensure a similar number of projects in each category. The researcher then conducted a mean comparison of the planning level for each of the 16 planning processes between the two risk level project groups. Table 6 shows that there was no significant change to the planning level for eight planning processes between low and high risk levels. Planning was higher for high-risk projects than for low-risk ones in three planning processes: development of a project plan, a Gantt chart (schedule), and risk management plan. However, for five other processes (resource, cost (two processes), human resources, and procurement planning), planning levels were lower when facing higher risk levels.

[Insert Table 6 about here]

These results suggest governments do not adequately adapt their planning practices (and even reduced planning in some cases) to higher risk levels and, thus, can explain the low impact of planning on performance in government projects. The researcher found that the government projects invested much in planning (and more than the private sector) regardless of the risk level. In high-risk projects, because delivery of outputs is a major challenge, increased focus on planning could have assisted the government projects in delivering outputs according to a clearer pathway. In particular, in high-risk projects, managers should use more advanced planning tools and senior managers should support the project with highly skilled and capable resources. However, in low-risk projects, stable environments require less planning (Brews & Hunt, 1999). Having a long planning process when unnecessary can enhance bureaucracy (Miller & Cardinal, 1994), increase project duration, and, hence, reduce efficiency without noticeable contribution. Instead, planning in low-risk

government projects should be lean (rather than long) and bureaucratic because output delivery is relatively secured.

In summary, the article compares the risk-planning-performance theory in the government and private sectors. This research shows that planning has lower value in the government sector than in private projects partly because government organizations do not adapt it to the risk level of the project at hand. This result agrees with the literature, which argues that planning only marginally helps government agencies achieve their goals (Propper & Wilson, 2003).

6. Conclusion

Risk-planning-performance argues that private sector projects improve their planning when facing high risk, and this adaptation enhances performance (Zwikael and Sadeh, 2007). However, this article shows that government organizations do not adapt how they plan their projects and programs to their risk level. In particular, government projects invest too much in planning when unnecessary (low risk projects) and too little when more planning is required (high risk levels). When the level of risk is relatively low, a lengthy formal and redundant planning process can be counterproductive to completing projects on time and in budget. This article suggests the planning's low effectiveness in government projects arises partly because these projects do not adequately adapt to their risk levels. Government organizations and their leaders should increase their adaptability and flexibility to changes in project environments (and, in particular, the risk level) (Parry, 1999; Garg & Deshmukh, 2010).

Readers should note this article's methodological limitations and corresponding research opportunities. First, despite its vast size, the sample

underrepresents some cultures. Future research could conduct a cultural diversity analysis. Second, the data is cross-sectional and comes from two sources, but at only one point in time following project completion when respondents might have been biased. For greater generalizability of the study's conclusions, scholars should conduct further longitudinal research.

This article advances risk-planning-performance theory by demonstrating its effectiveness in the private sector. However, the theory was not proven to be correct in the government sector. As the literature suggests that managers need to tailor their management approach to the type of project at hand (Becerra-Fernandez & Sabherwal, 2001; De Meyer, Loch, & Pich, 2002; Ramasesh & Browning, 2014), the article also identifies the planning processes that need higher attention in high-risk projects and those processes that receive too much unnecessary attention in low-risk government projects. At times when governments are encouraged to undertake large and complex initiatives (Blair, 2015), high-risk projects will often emerge. As such, governments need to adapt specific project planning capabilities for these challenges. This paper supports government managers to make better planning and resource allocation decisions.

References

Ammons, D. N., Coe, C., & Lombardo, M. (2001). Performance-comparison projects in local government: Participants' perspectives. *Public Administration Review*, *61*(1), 100-110.

Andersen, T. J. (2000). Strategic planning, autonomous actions and corporate performance. *Long Range Planning*, *33*, 184-200.

Aviram-Unger, E., Zwikael, O., & Restubog, S. (2013). Revisiting goals, feedback, recognition and performance success: the case of project teams. *Group & Organization Management: An International Journal*, *38*, 570-600.

Becerra-Fernandez, I., & Sabherwal, R. (2001). An integrative contingency model of software project risk management. *Journal of Management Information Systems*, *17*, 37-69.

Blair, D. G. (2015). Enhancing trust in government: Adoption of program management discipline can help government improve program delivery and service. *Public Administration Review*, *75*(6), 789-790.

Boyne, G. (2002). Public and private management: What's the difference? *Journal of Management Studies, 39*, 97-122.

Bozeman, B., & Kingsley, G. (1998). Risk culture in public and private organizations. *Public Administration Review, 58*, 109-118.

Brews, P. J., & Hunt, M. R. (1999). Learning to plan and planning to learn: Resolving the planning school/learning school debate. *Strategic Management Journal*, *20*(10), 889-913.

Brinckmann, J., Grichnikb, D., & Kapsac, D. (2010). Should entrepreneurs plan or just storm the castle? A meta-analysis on contextual factors impacting the

business planning–performance relationship in small firms. *Journal of Business Venturing*, *25*(1), 24-40.

Burke, A., Fraser, S., & Greene, F. J. (2010). The multiple effects of business planning on new venture performance. *The Journal of Management Studies*, *47*(3), 391-415.

Burns, T., & Stalker, G. (1961). *The Management of Innovation.* London, UK: Tavistock.

Chin, M. Y. A., & Pulatov, B. (2007). *International differences in project planning and organizational project planning support in Sweden, Japan, Israel and* Malaysia (doctoral dissertation). Umea University, Sweden.

Cohen, M. P. (2010). Practitioner's perspective-have we missed the boat on planning? *Public Administration Review*, 70, S227-S228.

Cole, M., & Parston, G. (2006). *Unocking public value: A new model for achieving high performance in public service organizations*. Hoboken, NJ: John Wiley & Sons.

Cortellessa, V., Goseva-Popstojanova, K., Appukkutty, K., Guedem, A. R., Hassan, A., Elnaggar, R., & Ammar, H. H. (2005). Model-based performance risk analysis. *IEEE Transactions on Software Engineering*, *31*(1), 3-20.

Das, T. K., & Teng, B. S. (2001). Trust, control, and risk in strategic alliances: An integrated framework. *Organizational Studies*, *22*, 251-283.

De Meyer, A., Loch, C. H., & Pich, M. T. (2002). Managing project uncertainty, from variation to chaos. *MIT Sloan Management Review*, *43*, 60-67.

Di Benedetto, C. A. (1999). Identifying the key success factors in new product launch. *Journal of Product Innovation Management*, *16*, 530-544.

Dvir, D., & Lechler, T. (2004). Plans are nothing, changing plans is everything: The impact of changes on project performance. *Research Policy*, *33*, 1-15.

Fernandez, S., & Rainey, H. G. (2006). Managing successful organizational change in the public sector. *Public Administration Review*, *66*(2), 168-176.

Flyvbjerg, B., Mette, S. H., & Buhl, S. (2002). Underestimating costs in public works projects: Error or lie? *Journal of the American Planning Association, 68*, 279-295.

Flyvbjerg B., Bruzelius N., & Rothengatter W. (2003). Megaprojects and risk: An anatomy of ambition. Cambridge, UK: Cambridge University Press.

Flyvbjerg, B. (2007). Policy and planning for large-infrastructure projects: Problems, causes, cures. *Environment and Planning B: Planning and Design*, *34*, 578-597.

Garson, G. D. (Ed.). (2003). *Public Information Technology: Policy and Management Issues*. IGI Global.

Gomes, C., Yasin, M., & Small, M. (2012). Discerning interrelationships among the knowledge, competencies, and roles of project managers in the planning and implementation of public sector projects. *International Journal of Public Administration*, *35*(5), 315-328.

Garg, A., & Deshmukh, S. G. (2010). Engineering support issues for flexibility in maintenance. *Asia Pacific Journal of Marketing and Logistics*, *22*(2), 247-270.

Greenberg, M. R., & Sinha, R. (2006). Government risk management priorities: A comparison of the preferences of Asian Indian Americans and other Americans. *Risk Analysis*, *26*(5), 1275-1289.

Han, S., Yun S., Kim H., Kwak Y. H., Park H. K., & Lee S. H. (2009). Analyzing schedule delay of mega project: Lessons learned from Korea Train Express. *IEEE Transactions on Engineering Management*, *56*(2), 243-256.

Holmes, D. (2001). *Egov: Ebusiness Strategies for Government*. London: Nicholas Brealey Publishing.

Hwang, B., Liao, P., & Leonard, M. P. (2011). Performance and practice use comparisons: public vs. private owner projects. *KSCE Journal of Civil Engineering*, *15*(6), 957-963.

Islam, M. D. M., & Faniran, O. O. (2005). Structural equation model of project planning effectiveness. *Construction Management and Economics*, *23*, 215-223.

Jolivet, F., & Navarre, C. (1996). Large-scale projects, self organizing and meta-rule: Towards new forms of management. *International Journal of Project Management*, *14*(5), 265-271.

Kakoty, J. S. (2011). Stochastic modeling of some managerial aspects of production planning. *Journal of Operations Management*, *10*(1), 29-42.

Kotler, P., & Keller, K. L. (2006). *Marketing Management* (12th ed.). New Jersey: Person Prentice Hall.

Kosar, K. R. (2009). A nearly forgotten classic study in public administration: Edward C. Banfield's government project. *Public Administration Review*, 69(5), 993-997.

Leven, C. (2006). Distortions in estimating net benefits of regional development projects, *The Annals of Regional Science, 40*, 191-201.

Lipovetsky, S., Tishler, A., Dvir, D., Shenhar, A. (1997). The relative importance of project performance dimensions. *R&D Management*, *27*, 97-106.

Lowe, B. (2010). Consumer perceptions of extra free product promotions and discounts: The moderating role of perceived performance risk. *The Journal of Product and Brand Management*, *19*(7), 496-503.

Maccrimmon, K., & Wehrung, D. A. (1986). *The Management of Uncertainty: Taking Risks*. New York: Free Press.

Masters, B., & Frazier G. V. (2007). Project quality activities and goal setting in project performance assessment. *The Quality Management Journal*, *14*, 25-35.

Mcube, U., Gerber, M., & Von Solms, R. (2016). Scenario-based IT risk assessment in local government. In *Proceedings of the IST-Africa Week Conference* (pp. 1-9).

McPhee, I. (2008). Project management in the public sector. *International Journal of Government Auditing*, *35*(4), 10-12.

Miller, C. C., & Cardinal, L. B. (1994). Strategic planning and firm performance: a synthesis of more than two decades of research. *Academy of Management Journal*, *37*, 1649-1665.

Moore, M. H. (2013). *Recognizing Public Value*. Cambridge, MA: Harvard University Press.

Narayanan, S., Balasubramanian, S., & Swaminathan, J. M. (2011). Managing outsourced software projects: An analysis of project performance and customer satisfaction. *Production and Operations Management*, *20*, 508–521.

Nutt, P. C. (2006). Comparing public and private sector decision-making practices. *Journal of Public Administration Research and Theory*, *16*(2), 289-318.

Oliva, R., & Watson, N. (2011). Cross-functional alignment in supply chain planning: A case study of sales and operations planning. *Journal of Operations Management*, *29*(5), 434-484.

Papke-Shields, K. E., Beise, C., & Quan, J. (2010). Do project managers practice what they preach and does it matter to project performance? *International Journal of Project Management*, *28*, 650-662.

Parry, K. W. (1999). Enhancing adaptability: Leadership strategies to accommodate change in local government settings. *Journal of Organizational Change Management*, *12*(2), 134-156.

Patanakul, P. (2014). Managing large-scale IS/IT projects in the public sector: Problems and causes leading to poor performance. *Journal of High Technology Management Research*, *25*(1), 21-35.

Patanakul, P., Kwak, Y., Zwikael, O., & Liu, M. (2016). What impacts the performance of large-scale government projects? *International Journal of Project Management*, *34*(3), 452-466.

Pinto, J. K., & Mantel, S. J., Jr. (1990). The causes of project failure. *IEEE Transactions on Engineering Management*, *37*, 269-276.

PMI. (2013). *A guide to the project management body of knowledge* (5th ed.). Newtown Square, PA: Project Management Institute.

Propper, C., & Wilson, D. (2003). The use and usefulness of performance measures in the public sector. *Oxford Review of Economic Policy*, 19, 250-267.

Ramasesh, R. V., & Browning, T. R. (2014). A conceptual framework for tackling knowable unknown unknowns in project management. *Journal of Operations Management*, *32*(4), 190-204.

Rees-Caldwell, K., & Pinnington, A. H. (2013). National culture differences in project management: comparing British and Arab project managers' perceptions of different planning areas. *International Journal of Project Management*, *31*, 221–227.

Schein, V. E. (1985). Organizational realities. The politics of change. *Performance Improvement*, *24*(2), 1-5.

Schuler, R. S. (1994). *Managing Human Resources* (5th ed.). Minneapolis/St. Paul, MN: West Publishing Company.

Scott-Young, C., & Samson, D. (2008). Project success and project team management: Evidence from capital projects in the process industries. *Journal of Operations Management*, *26*, 749-766.

Shalley, C. E., Gilson, L. L., & Blum, T. C. (2009). Interactive effects of growth need strength, work context and job complexity on self-reported creative performance. *Academy of Management Journal*, *52*, 489-505.

Shenhar, A. J. (2001). One size does not fit all projects: Exploring classical contingency domains. *Management Science*, *47*(3), 394-414.

Shin, S. J., & Zhou, J. (2003). Transformational leadership, conservation and creativity: Evidence from Korea. *Academy of Management Journal*, *46*, 703-714.

Somers, S., & Svara, J. H. (2009). Assessing and managing environmental risk: Connecting local government management with emergency management. *Public Administration Review*, *69*(2), 181-193.

Torres, L., & Pina, V. (2004). Reshaping public administration: The Spanish experience compared to the UK. *Public Administration*, *82*(2), 445-464.

Tyagi, V., Jain, A., & Jain, P. K. (2013). Towards integrated manufacturing planning and control: A review and classification. *Journal of Operations Management*, *12*(2), 57-79.

Wallace, L., Keil, M., & Rai, A. (2004). How software project risk affects project performance: an investigation of the dimensions of risk and an exploratory model. *Decision Sciences*, *35*, 289-321.

Wooddell, V. (2002). Consulting in the public sector: Challenges and opportunities. *Organization Development Journal*, *20*(2), 91-95.

Zwikael, O., & Globerson, S. (2004). Evaluating the quality of project planning: A model and field results. *International Journal of Production Research*, 42, 1545–1556.

Zwikael, O., & Sadeh, A. (2007). Planning effort as an effective risk management tool. *Journal of Operations Management*, 25, 755-767.

Zwikael, O., & Smyrk, J. R. (2012). A general framework for gauging the performance of initiatives to enhance organizational value. *British Journal of Management*, *23*, S6-S22.

Zwikael, O., Pathak, R. D., Singh, G., & Ahmed, S. (2014). The moderating effect of risk on the relationship between planning and success. *International Journal of Project Management*, *32*, 435-441.

Zwikael, O., & Smyrk, J. (2015). Project governance: Balancing control and trust in dealing with risk. *International Journal of Project Management*, *33*(4), 852-862.

Figure 1. Theoretical Model of the Study

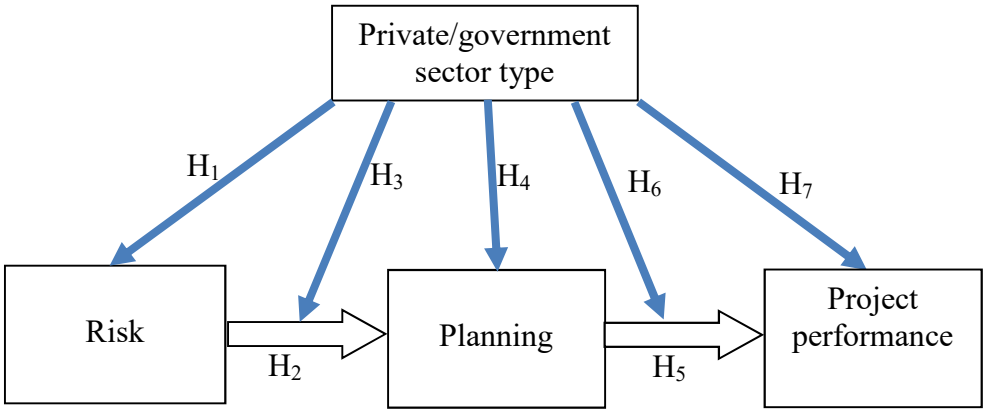

Table 1. A Comparison between Private and Government Projects

	Private	Government	F value
Risk level	**6.78** (1.91)	5.94 (1.87)	26.27***
Planning	3.55 (.76)	**3.77** (.81)	16.92***
Efficiency	**-15.99 (21.96)**	-24.24 (22.87)	28.67***
Effectiveness	7.65 (1.60)	7.51 (1.50)	1.50

N = 992.
*$p < .05$; **$p < .01$; ***$p < .001$. *Two-tailed test.*

Table 2. Impact of Risk Level on Planning

	Overall		Private		Government	
	Model 1	**Model 2**	**Model 1**	**Model 2**	**Model 1**	**Model 2**
Control variables						
Project cost	-.02	.00	-.06	-.03	.02	.04
Project FTE	.10*	.00	.10	.08	.10	.11
Number of projects	-.08	.00	-.08	-.07	-.02	-.03
Independent variable						
Risk level		**.02***		**.16***		.11
R^2	.01	.03	.02	.05	.01	.03
F	2.47	3.19*	1.49	2.77*	1.07	1.50

N = 992 with listwise deletion. Standardized regression coefficients are shown.
*$p < .05$; **$p < .01$; ***$p < .001$

Table 3. Impact of Planning on Efficiency

	Overall		Private		Government	
	Model 1	**Model 2**	**Model 1**	**Model 2**	**Model 1**	**Model 2**
Control variables						
Project cost	.03	.03	.02	.04	.01	.01
Project FTE	.04	.03	.04	.00	.04	.06
Number of projects	.12*	.12*	.07	.10	.10	.10
Independent variable						
Planning		.03		**.41*** **		**-.20** **
R^2	.02	.02	.01	.17	.01	.05
F	2.39	1.91	.47	11.76***	.81	2.89*

N = 992 with listwise deletion. Standardized regression coefficients are shown.
*$p < .05$; **$p < .01$; ***$p < .001$

Table 4. Impact of Planning on Effectiveness

	Overall		Private		Government	
	Model 1	**Model 2**	**Model 1**	**Model 2**	**Model 1**	**Model 2**
Control variables						
Project cost	-.03	-.03	-.12	-.10	.09	.09
Project FTE	-.01	-.03	-.02	-.06	-.08	-.10
Number of projects	.06	.07	-.01	.02	.07	.07
Independent variable						
Planning		**.20*** **		**3.53*** **		.10
R^2	.01	.05	.01	.14	.01	.02
F	.74	5.44***	1.26	9.40***	.85	1.15

N = 992 with listwise deletion. Standardized regression coefficients are shown.
*$p < .05$; **$p < .01$; ***$p < .001$

Table 5. A Comparison of Planning Focus between Private and Government Projects

Planning artifact	Private sector	Government sector	F value
Project plan	4.10	**4.36**	**14.18*** **
Project deliverables	4.15	4.27	3.36
Work breakdown structure	3.67	**3.88**	**6.49***
Project activity definitions	4.02	4.06	0.36
Pert or Gantt chart (schedules)	**3.79**	3.64	**3.02***
Activity duration estimates	4.16	4.06	2.22
Activity start and end dates	4.15	4.14	0.03
Activity required resources	3.87	3.85	0.04
Resource cost	**3.68**	3.84	**3.91***
Time-phased budget	3.41	**3.83**	**23.88*** **
Quality management plan	3.14	**3.53**	**22.14*** **
Role and responsibility assignments	3.87	3.87	0.00
Project staff assignments	3.7	3.72	0.12
Communications management plan	3.06	**3.53**	**28.41*** **
Risk management plan	3.29	**3.58**	**10.87*** **
Procurement management plan	2.95	**3.44**	**33.21*** **

N = 992.
*$p < .05$; **$p < .01$; ***$p < .001$. *Two-tailed test.*

Table 6. A Comparison between Low- and High-risk Government Projects

Planning artifact	Low risk	High risk	F value
Project plan	4.32	**4.64**	**8.28****
Project deliverables	4.26	4.37	.66
Work breakdown structure	4.07	4.06	.01
Project activity definitions	4.12	4.02	.48
Pert or Gantt chart (schedules)	3.43	**4.06**	**12.52*****
Activity duration estimates	4.08	3.94	.94
Activity start and end dates	4.24	4.22	.02
Activity required resources	**4.13**	3.77	**7.46****
Resource cost	**4.23**	3.93	**5.58***
Time-phased budget	**4.21**	3.80	**9.00****
Quality management plan	3.79	3.59	1.89
Role and responsibility assignments	**4.05**	3.74	**5.03***
Project staff assignments	3.87	3.89	.01
Communications management plan	3.74	4.01	3.71
Risk management plan	3.65	**4.08**	**7.62***
Procurement management plan	**3.81**	3.23	**12.98*****

N = 992.
*$p < .05$; **$p < .01$; ***$p < .001$. *Two-tailed test.*